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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,777

04/14/2004

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081468-0309196

4703

909

7590

08/19/2009

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EXAMINER

MATHEWS, ALAN A

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

08/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/823,777	Applicant(s) KOLESNYCHENKO ET AL.	
	Examiner ALAN A. MATHEWS	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-20 and 22-48 is/are pending in the application.
- 4a) Of the above claim(s) 6,13,14,26,31,33,41-43 and 48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,12,15-20,22,23,25,27,28,30,32,34-38 and 44-47 is/are rejected.
- 7) ☒ Claim(s) 3,5,8-11,24,29,39 and 40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 7, 12, 15-20, 22, 25, 27, 28, 30, 32, 34-38, and 44-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Santen et al. (U. S. Patent Application Publication No. 2005/0134815 A1). Van Santen et al. '815 discloses in figure 1 a lithographic apparatus with a support structure MT configured to hold a patterning device MA and a substrate stage WT configured to hold a substrate W. Element PL is the projection system. Figure 4 and paragraphs # 0052 - # 0062 disclose a liquid supply system 10 which supplies liquid to a localized area (see in particular paragraphs # 008 and # 0018 which discuss supplying to a **localized area** and **collecting liquid that has spilled from the localized area of the supply system**). Element 50 in figure 4 is a barrier which comprises a projection which projects out above an upper surface of the substrate table and element 63 is considered to be a

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groove recessed into an upper surface of the substrate table. With respect to claims 12 and 25, element 66 is considered to be a further groove. With respect to claims 15, 27, and 28, element 66 is considered to be the drainage ditch or additional barrier, surrounding an outer peripheral edge of the substrate W. Barrier 50 and 63 is positioned radially outwardly of the drainage ditch 66. With respect to claims 16 and 35, barrier 50 extends substantially around an outer edge of portion of the substrate table. With respect to claim 17, figure 4 discloses that barrier 50 additionally surrounds areas of an upper surface of the substrate table which are not covered by the substrate W. With respect to claims 18 and 36, barrier 50 additionally surrounds sensor 70 and/or closure member 80. With respect to claims 7, 22, and 34, low pressure supply would remove liquid from the barrier.

With respect to Applicant's arguments, Applicant based his arguments on the word "only" in claim 1 and claim 19. Applicant argues that Van Santen '815 does not disclose that *only* a localized area of the substrate, of the substrate table, or of both, is covered with liquid, wherein the localized area is less than the area of a surface of the whole substrate. But the only place in Applicant's specification that uses the word "only" in this context is in paragraph # 0005 in Applicant's Background. But Applicant states in paragraph # 0006 in the Background of the instant application "if a liquid supply system fails, **immersion liquid can easily escape. Furthermore, if the localized area liquid supply system is not efficient, immersion liquid can be left behind on the substrate table** and then can leave the substrate table under the forces generated by the acceleration of the substrate table". Applicant also states in paragraph # 0015 of

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the instant application “Using the barrier, **liquid spilt by the liquid supply system or escaping from the liquid supply system** may be collected----“. Applicant further states in paragraph # 0024 of the instant application “The barrier extends essentially around an outer edge or portion of the substrate table. Thus, with any relative position of the liquid supply system on the substrate table, **the barrier can be used to collect liquid which is spilled**”. Applicant's system appears to have a localized liquid supply system that is not efficient and that **spills** liquid that **escapes** from the liquid supply system, with the result the immersion liquid gets on the substrate table. So it appears that Applicant's use of the word “only” is, at best” a very general statement, and not a hard and fast statement and is not a structurally specific statement. With regard to the rejection above, Van Santen '815 states in paragraph # 0018, “**In this way immersion liquid which has spilled from the localized area of the supply system (i.e. the area under the projection system) may be collected -----**”. Thus, Van Santen '815 is also concerned with and discloses collecting liquid that spills from the localized area of the supply system like Applicant's claims in the instant application.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

3. Claims 19, 22, 23, 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Novak '181. Novak '181 is a continuation of a PCT application filed in the US, the 102(e) date goes back to at least April 1, 2004 (but with a Provisional application being claimed in the reference, the date actually goes back to April 10, 2003). Novak '181 discloses in figure 1 a lithographic apparatus 10 having an illumination system 14, a support structure 18 to hold patterning device 28, a substrate table 20 to hold substrate 30, and a projection system 16. Figure 2A and paragraph # 0044 discloses a liquid supply system 252 (including nozzles 258) to supply a liquid to a localized area the substrate 30 (which is less than the area of a surface of the whole substrate). The liquid supply system 252 fills a space between the projection system 16 and the substrate 30. Figure 2A and paragraphs # 0054 -# 0068 disclose a barrier which collects liquid. The barrier is considered to be the combination of the first recovery system 254 and the second recovery system 256. As shown in figure 2A, this barrier includes a **projection 276** and 270 that projects out above the upper surface of the substrate 30 when the substrate is held on the substrate table 20. It is noted that amended claim 19 (unlike claim 20 or claim 25) does not disclose where the projection projects out from. The barrier (combination of 254 and 256) includes a groove 287 recessed into an upper surface of the substrate table. With respect to claim 22, paragraph # 0076 discloses that the second recovery device 286 includes a low pressure source that removes liquid from the barrier. Paragraph # 0078 further

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discloses that the recovery device 286 can include multiple pumps. With respect to claim 47, paragraph # 0080 discloses the use of a hydrophilic (liquidphillic) coating.

Allowable Subject Matter

4. Claims 3, 5, 8-11, 24, 29, 39, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for the indicated allowability of the claims are as follows:

The prior art does not disclose or suggest wherein at least a part of the barrier comprises a liquid phillic material or coating in combination with all the other elements recited in the parent claims to dependent claim 3.

The prior art does not disclose or suggest wherein the groove is sized such that the liquid can be transported along the groove under capillary action in combination with all the other elements recited in the parent claim to dependent claim 5.

The prior art does not disclose or suggest wherein the low pressure supply comprises a plurality of discrete outlets in combination with all the other elements recited in the parent claims to dependent claim 8.

The prior art does not disclose or suggest wherein the low pressure supply operated independently of the liquid supply system in combination with all the other elements recited in the parent claims to dependent claim 9.

The prior art does not disclose or suggest further comprising a surface acoustic wave generator configured to generate surface acoustic waves in the barrier to facilitate transport of liquid along the barrier in combination with all the other elements recited in the parent claim to dependent claim 10.

The prior art does not disclose or suggest further comprising generating surface acoustic waves in the barrier to facilitate transport of liquid along the barrier in combination with all the other steps recited in the parent claim to dependent claim 24.

The prior art does not disclose or suggest wherein at least a part of the barrier comprises a liquidphillic material or coating in combination with all the other elements recited in the parent claim to dependent claim 29.

The prior art does not disclose or suggest wherein the groove is slightly tilted along its length such that any liquid in the groove can run under force of gravity

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towards the collecting recesses in combination with all the other elements recited in the parent claims to dependent claim 39.

The prior art does not disclose or suggest wherein the substrate further comprises a chamber in liquid contact with the upper surface via the groove and the chamber is a continuous annular chamber which has a cross-sectional area larger than that of the groove in combination with all the other elements recited in the parent claim to dependent claim 40.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN A. MATHEWS whose telephone number is (571)272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan A. Mathews/
Primary Examiner
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AM

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